PA_NT COOPERATION TREAT

From the INTERNATIONAL BUREAU

PCT	То:
NOTIFICATION OF ELECTION (PCT Rule 61.2)	Assistant Commissioner for Patents United States Patent and Trademark Office Box PCT Washington, D.C.20231
	ETATS-UNIS D'AMERIQUE
Date of mailing (day/month/year) 06 July 2000 (06.07.00)	in its capacity as elected Office
International application No. PCT/US99/26062	Applicant's or agent's file reference 98A9-PCT
International filing date (day/month/year) 05 November 1999 (05.11.99)	Priority date (day/month/year) 05 November 1998 (05.11.98)
Applicant	
CROUGHAN, Timothy, P.	
The designated Office is hereby notified of its election mad in the demand filed with the International Preliminary 22 May 2000 (in a notice effecting later election filed with the International Preliminary 2. The election was was not made before the expiration of 19 months from the priority Rule 32.2(b).	y Examining Authority on: 22.05.00) national Bureau on:
BE	ST AVAILABLE COPY
The International Bureau of WIPO	Authorized officer

Form PCT/IB/331 (July 1992)

Facsimile No.: (41-22) 740.14.35

34, chemin des Colombettes 1211 Geneva 20, Switzerland

US9926062

Juan Cruz

Telephone No.: (41-22) 338.83.38



From the

INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

RUNNELS, John H.
Taylor, Porter, Brooks
& Phillips, L.L.P.
P.O. Box 2471
Baton Rouge, LA 70821
ETATS-UNIS D'AMERICUE
RECEIVE

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)

Date of mailing

(day/month/year)

05.02.2001

Applicant's or agent's file reference

TAYLOR PORTER BROOKS & PHILLIP

98A9-PCT

IMPORTANT NOTIFICATION

International application No. PCT/US99/26062

International filing date (day/month/year)

05/11/1999

Priority date (day/month/year)

05/11/1998

Applicant

BOARD OF SUPERVISORS OF LOUISIANA STATE... et al.

- 1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
- 2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
- 3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

Authorized officer

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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicantia		antia fila safarana				
98A9-PC		ent's file reference	FOR FURTHER A	CTION		ation of Transmittal of International Examination Report (Form PCT/IPEA/416)
Internation	al app	lication No.	International filing date (day/month	/year)	Priority date (day/month/year)
PCT/US	99/26	6062	05/11/1999			05/11/1998
Applicant		ent Classification (IPC) or n	ational classification and IP	C		
BOARD	OF S	SUPERVISORS OF LO	DUISIANA STATE e	t al.	·	
		ational preliminary exan smitted to the applicant		prepared	by this Inte	rnational Preliminary Examining Authority
2. This	REPO	ORT consists of a total o	f 7 sheets, including this	s cover sh	neet.	
b	een a	mended and are the ba		sheets c	ontaining re	n, claims and/or drawings which have ctifications made before this Authority te PCT).
These	e ann	exes consist of a total o	f 19 sheets.			
3. This r	eport	contains indications rela	ating to the following iter	ns:		
1	×	Basis of the report				
II		Priority				
#11				velty, inv	entive step	and industrial applicability
V	⊠ ⊠				novelty, inve	entive step or industrial applicability;
VI		Certain documents cit	, -			
VII	\boxtimes	Certain defects in the i	international application			
VIII	⊠	Certain observations of	on the international applic	cation		
Date of sub	missio	on of the demand		Date of o	completion of	this report
22/05/20				05.02.20	-	
		g address of the international	al	Authorize	ed officer	SOURCE MOROLE
<u></u>	Euro D-80	pean Patent Office 0298 Munich +49 89 2399 - 0 Tx: 52365	ifi enmu d	Herrera	a, M	
		+49 89 2399 - 4465		Telephor	ne No. +49 89	2399 2090

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/26062

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ı.	Basis	of	the	rep	ort
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1.	res _i the		on under Article 1	4 are referred	to in this repo	rt as "originally f	ished to the receiving Office in iled" and are not annexed to
	1-1	0,12-55	as originally filed				
	11		filed with the den	nand	,		•
	Cla	ims, No.:					
	1-1: 75-	5,31-38,54-73, 128	as received on	,	13/11/2000	with letter of	09/11/2000
2	With	n regard to the lanc	uage all the elen	nents marked	ahove were a	vailable or fumis	hed to this Authority in the
		guage in which the i					
	The	se elements were a	available or furnist	ned to this Au	thority in the fo	ollowing languag	e: , which is:
		the language of a t	translation furnish	ed for the pur	poses of the ir	nternational sear	ch (under Rule 23.1(b)).
		the language of pu					• • • • • • • • • • • • • • • • • • • •
		the language of a t 55.2 and/or 55.3).	translation furnish	ed for the pur	poses of inter	national prelimina	ary examination (under Rule
3.		n regard to any nuc rnational preliminan					ational application, the sting:
		contained in the int	ternational applica	ation in writter	n form.	•	
		filed together with t	the international a	pplication in	computer read	able form.	
		furnished subseque	ently to this Autho	rity in written	form.		
		furnished subseque	ently to this Autho	rity in compu	ter readable fo	rm.	
		The statement that the international ap				e listing does not	go beyond the disclosure in
		The statement that listing has been fur		ecorded in co	mputer readab	ole form is identic	cal to the written sequence
4.	The	amendments have	resulted in the ca	ncellation of:			
		the description,	pages:				•
	×	the claims,	Nos.:	16-30,39-53	3,74		
		the drawings,	sheets:				

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/26062

5.		This report has been es		•	some of) the amendments had not been made, since they have been as filed (Rule 70.2(c)):
		(Any replacement shee report.)	t contail	ning such	amendments must be referred to under item 1 and annexed to this
6.	Add	ditional observations, if n	ecessar	y:	
IV	. Lac	ck of unity of invention			
1.	in r	esponse to the invitation	to restri	ict or pay	additional fees the applicant has:
		restricted the claims.			
1		paid additional fees.			
		paid additional fees und	ier prote	est.	
		neither restricted nor pa	id addit	ional fee	S
2.	⊠	This Authority found the 68.1, not to invite the ap			t of unity of invention is not complied and chose, according to Rule t or pay additional fees.
3.	This	s Authority considers tha	t the rec	quirement	of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
		complied with.			
	⊠	not complied with for the see separate sheet	e followi	ng reaso	ns:
4.		nsequently, the following mination in establishing			national application were the subject of international preliminary
	×	all parts.			•
		the parts relating to clai	ms Nos.		•
	cita	soned statement unde tions and explanations			ith regard to novelty, inventive step or industrial applicability; th statement
	Max	roller (AI)	Vasi	Claima	1 15 21 22 54 72 77 22 22 22 22
	IVOV	relty (N)	Yes: No:	Claims Claims	
	Inve	entive step (IS)	Yes: No:	Claims Claims	1-15,31-38,54-60,64-70,72,73,77-80,82-111,113-127 61-63,71,68,112,128
	Indu	ustrial applicability (IA)	Yes:	Claims	1-15,31-38,54-73,75-128



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No: Claims

2. Citations and explanations see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted: see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

INTERNATIONAL PRELIMINARY International application No. PCT/US99/26062 EXAMINATION REPORT - SEPARATE SHEET

Re Item IV Lack of unity of invention

The subject matter *common* to claims 1, 62, 71 and 75 consists merely in resistance of a plant to the action of a herbicide. This feature is *per se* well known in the prior art and forms part of the skilled person's common knowledge. The common subject matter to these claims is therefore not novel and, consequently, not inventive. The claims above, with their correspondent dependent claims, are not so linked as to form a single general inventive concept as required by Rule 13.1 PCT.

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The invention relates to resistance of rice plants to a number of herbicides. In particular a number of plants according to their ATCC accession number are claimed in independent claims 1, 81 and 82. Independent claims 62 and 75 claim define plants resulting from a particular procedure. A process of obtaining plants is defined in independent claim 71. Weed control processes are claimed in independent claims 38, 61, 63, 65, 67, 69, 76, 78, 80, 112 and 128.

The prior art cited in the International search report does not mention or suggest ATCC accession numbers such as claimed in claims 1 and 82. Thus, the plants defined in these claims are to be considered novel and involving an inventive step.

Claim 62 claims plants obtained through a screening procedure, disclaiming plants with ATCC accession number 97523, which is mentioned in US-A-5 545 822. The claim is therefore novel as regards the cited prior art. However, the generic process to obtain said plants by mutation induction, exposure to herbicides at a level inhibiting growth and subsequent screening to identify plants resistant to herbicide such as imazethapyr, is known from the above mentioned document. Similarly, it is known to apply a procedure to control weeds once the resistant trait has been isolated and made available for commercial exploitation, by simple application of the herbicide to which the commercial plant is resistant. As a consequence, the subject matter of claims 61, 62, 63, 71 is novel (because of the disclaimed subject matter), but it cannot be considered

INTERNATIONAL PRELIMINARY Inter EXAMINATION REPORT - SEPARATE SHEET

International application No. PCT/US99/26062

as unexpected for the skilled person aware of the procedure detailed in document US-A-5 545 822 or indeed of common herbicide application techniques. Claims 61, 62, 63, and 71, in addition to 68, 112 and 128 therefore cannot be considered to involve an inventive step within the meaning of Article 33(3) PCT.

Claim 75 refers to a first and a second herbicide resistant AHAS. US-A-5 545 822 discloses such a combined resistance, anticipating the contents of claim 75 and by extension that of claim 76, contrary to Article 33(2) PCT.

The plant with accession number ATCC 75925 is described in US-A-5 545 822, which further discloses individuals of F_3 exhibiting resistance characteristics of ATCC 75925 (cf. col. 9), so that claim 81 is not novel.

The subject matter of the remaining claims is not directly disclosed or suggested in the prior art cited in the International Search Report.

Re Item VII

Certain defects in the international application

The numbering of the claims and the order with which they they have been arranged do not comply with the provisions of Rule 6.1 PCT.

There appears to be no reason which would justify the inappropriateness of drafting the claims, especially the independent ones in the two-part form required by Rule 6.3(b) PCT.

Re Item VIII

Certain observations on the international application

The subject matter of claims 2 to 7, 9 to 15 and 31 to 37 is contained in the scope, and is therefore a repetition of, the definition of the subject matter according to claim 1. These claims are therefore redundant in scope and contravene the requirement of conciseness of Article 6 PCT.

The method of claim 38 refers to the plants defined in claim 1, with the only difference that primisulfuron may also be used. The plant of claim 1 is defined as a selection among several possibilities. The way of claiming every single selection possibility in a separate independent claim as done for claims 54 to 60, which append on claim 38, is



International application No. PCT/US99/26062

EXAMINATION REPORT - SEPARATE SHEET

a repetition of the definition of the subject matter according to claim 38. These claims are not concise, contrary to Article 6 PCT. In general, because of the proliferation of claims, some of which with identical scope, the application fails to comply with the requirement of conciseness of Article 6 PCT. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought (what the invention is about), and places an undue burden on the reader seeking to establish the real extent of the claimed subject matter, in contravention also of Rule 6.1(a) PCT.

The use of a non-uniform denomination for the same plant, e.g. PTA-904, PWC-16 and ATCC aaaaa (including the inventor's own denomination), makes the definition of claims unclear and difficult to comprehend for the skilled reader.

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application; 0.10 lb ai/A sulfometuron methyl (trade name Oust™) as a pre-emergence application; 0.05 lb ai/A sulfometuron methyl as a post-emergence application; 0.10 lb ai/A nicosulfuron (trade name Accent™) applied pre-emergence; and 0.05 lb ai/A nicosulfuron applied post-emergence. Two M₃ seed from each of the twenty-three herbicide-resistant lines were planted in each of four replicate pots for each treatment. Equivalent plantings of control lines were made with (non-resistant) Cypress and Bengal rice seeds.

Samples of the seed harvested from several of these lines of the M4 progeny; namely, samples of M₅ seed from each of the seven separate lines designated by the inventor as PWC16, PWC23, CMC29, CMC31, WDC33, WDC37, and WDC38; were separately deposited with the American Type Culture Collection (ATCC), 10801 University Boulevard, Manassas, Virginia 20110-2209 on November 2, 1999; and were assigned ATCC Accession Nos. PTA-904, PTA-905, PTA-902, PTA-903, PTA-906, PTA-907, and PTA-908, respectively. Each of these deposits was made pursuant to a contract between ATCC and the assignee of this patent application, Board of Supervisors of Louisiana State University and Agricultural and Mechanical College. Each of the contracts with ATCC provides for permanent and unrestricted availability of these seeds or the progeny of these seeds to the public on the issuance of the U.S. patent describing and identifying the deposit or the publication or the laying open to the public of any U.S. or foreign patent application, whichever comes first, and for the availability of these seeds to one determined by the U.S. Commissioner of Patents and Trademarks (or by any counterpart to the Commissioner in any patent office in any other country) to be entitled thereto under pertinent statutes and regulations. The assignee of the present application has agreed that if any of the seeds on deposit should become nonviable or be lost or destroyed when cultivated under suitable conditions, they will be promptly replaced on notification with a viable sample of the same seeds.

Five other lines, designated by the inventor as PWC17, PWC19, PWC21, PWC22, and CMC27, exhibited lower levels of herbicide resistance. These lines appear to differ both from the lines that have now been deposited with ATCC, and from prior line ATCC 97523. Due to their lower levels of resistance, these lines had not been deposited with ATCC as of the international filing date of the present application. However, these lines may have potential value as breeding material to cross with other sources of herbicide resistance, or with each other, in order to enhance total levels of resistance. If these five lines involve different resistance mechanisms, or different AHAS isozymes as compared to the ATCC-deposited lines, then crossing one of these lines with one of the ATCC-deposited lines could result in a hybrid with an enhanced total level of resistance. Their herbicide resistance levels would not,



What is claimed:

1. A rice plant wherein:

- (a) the growth of said plant is resistant to inhibition by one or more of the following herbicides, at levels of herbicide that would normally inhibit the growth of a rice plant: imazethapyr, imazapic, imazapyr, nicosulfuron, sulfometuron methyl, imazaquin, imazamox, chlorimuron ethyl, metsulfuron methyl, rimsulfuron, thifensulfuron methyl, tribenuron methyl, pyrithiobac sodium, or a derivative of any of these herbicides; and
- (b) said plant is a derivative of at least one of the plants selected from the group of plants with ATCC accession numbers 203419, 203420, 203421, 203422, 203423, 203424, 203425, 203426, 203427, 203428, 203429, 203430, 203431, 203432, 203433, aaaaa, bbbbb, ccccc, ddddd, eeeee, fffff, and ggggg; and
- (c) said plant has the herbicide resistance characteristics of at least one of the plants selected from the group of plants with ATCC accession numbers 203419, 203420, 203421, 203422, 203423, 203424, 203425, 203426, 203427, 203428, 203429, 203430, 203431, 203432, 203433, aaaaa, bbbbb, ccccc, ddddd, eeeee, fffff, and ggggg.
- 2. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to inhibition by imazethapyr, at levels of imazethapyr that would normally inhibit the growth of a rice plant.
- 1 3. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to inhibition by imazapic, at levels of imazapic that would normally inhibit the growth of a rice plant.
- 4. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to inhibition by imazapyr, at levels of imazapyr that would normally inhibit the growth of a rice plant.

- 1 5. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by nicosulfuron, at levels of nicosulfuron that would normally inhibit the growth of a rice plant.
- 1 6. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by sulfometuron methyl, at levels of sulfometuron methyl that would normally inhibit
- 3 the growth of a rice plant.
- 4 7. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 5 inhibition by imazaquin, at levels of imazaquin that would normally inhibit the growth of a rice plant.
- 1 8. A rice plant as recited in Claim 1, wherein the growth of said plant is additionally
- resistant to inhibition by primisulfuron, at levels of primisulfuron that would normally inhibit the growth of a rice plant.
- 9. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by imazamox, at levels of imazamox that would normally inhibit the growth of a rice plant.
- 1 10. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by chlorimuron ethyl, at levels of chlorimuron ethyl that would normally inhibit the growth of a rice plant.
- 1 11. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- inhibition by metsulfuron methyl, at levels of metsulfuron methyl that would normally inhibit the growth of a rice plant.
- 1 12. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by rimsulfuron, at levels of rimsulfuron that would normally inhibit the growth of a rice plant.
- 1 13. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- inhibition by thisensulfuron methyl, at levels of thisensulfuron methyl that would normally inhibit the growth of a rice plant.

- 1 14. A rice plant as recited in Claim 1, wherein the growth of said plant is additionally
- resistant to inhibition by tribenuron methyl, at levels of tribenuron methyl that would normally inhibit the growth of a rice plant.
- 1 15. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by pyrithiobac sodium, at levels of pyrithiobac sodium that would normally inhibit the growth of a rice plant.
- 1 16. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number 203419, or is any progeny of the plant with ATCC accession number 203419; wherein
- 3 said plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203419.
- 1 17. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number 203420, or is any progeny of the plant with ATCC accession number 203420; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203420.
- 1 18. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203421, or is any progeny of the plant with ATCC accession number 203421; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203421.
- 1 19. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number 203422, or is any progeny of the plant with ATCC accession number 203422; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203422.
- 1 20. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number 203423, or is any progeny of the plant with ATCC accession number 203423; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203423.



- 1 21. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203424, or is any progeny of the plant with ATCC accession number 203424; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203424.
- 1 22. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203425, or is any progeny of the plant with ATCC accession number 203425; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203425.
- 1 23. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203426, or is any progeny of the plant with ATCC accession number 203426; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203426.
- 1 24. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203427, or is any progeny of the plant with ATCC accession number 203427; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203427.
- 1 25. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203428, or is any progeny of the plant with ATCC accession number 203428; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203428.
- 1 26. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203429, or is any progeny of the plant with ATCC accession number 203429; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203429.
- 1 27. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203430, or is any progeny of the plant with ATCC accession number 203430; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203430.

- 1 28. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203431, or is any progeny of the plant with ATCC accession number 203431; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203431.
- 1 29. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number 203432, or is any progeny of the plant with ATCC accession number 203432; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203432.
- 1 30. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number 203433, or is any progeny of the plant with ATCC accession number 203433; wherein
- said plant has the herbicide resistance characteristics of the plant with ATCC accession number 203433.
- 1 31. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number aaaaa, or is any progeny of the plant with ATCC accession number aaaaa; wherein said
- 3 plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 aaaaa.
- 1 32. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number bbbbb, or is any progeny of the plant with ATCC accession number bbbbb; wherein
- 3 said plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 bbbbb.
- 1 33. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number ccccc, or is any progeny of the plant with ATCC accession number ccccc; wherein said
- 3 plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 cccc.
- 1 34. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number ddddd, or is any progeny of the plant with ATCC accession number ddddd; wherein
- 3 said plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 ddddd.

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- 35. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession number eeeee, or is any progeny of the plant with ATCC accession number eeeee; wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession number eeeee.
- 36. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession number fffff, or is any progeny of the plant with ATCC accession number fffff; wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession number fffff.
- A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession number ggggg, or is any progeny of the plant with ATCC accession number ggggg; wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession number ggggg.
 - 38. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 1, said process comprising applying a herbicide to the weeds and to the rice plant, wherein the herbicide comprises imazethapyr, imazapic, imazapyr, nicosulfuron, sulfometuron methyl, imazaquin, primisulfuron, imazamox, chlorimuron ethyl, metsulfuron methyl, rimsulfuron, thifensulfuron methyl, tribenuron methyl, pyrithiobac sodium, or a derivative of any of these herbicides.
- 39. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession number 203419, or is any progeny of the plant with ATCC accession number 203419; wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203419.
- 40. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession number 203420, or is any progeny of the plant with ATCC accession number 203420; wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203420.

- 1 41. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203421, or is any progeny of the plant with ATCC accession number 203421; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203421.
- 1 42. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number 203422, or is any progeny of the plant with ATCC accession number 203422; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203422.
- 1 43. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203423, or is any progeny of the plant with ATCC accession number 203423; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203423.
- 1 44. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203424, or is any progeny of the plant with ATCC accession number 203424; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203424.
- 1 45. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number 203425, or is any progeny of the plant with ATCC accession number 203425; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203425.
- 46. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number 203426, or is any progeny of the plant with ATCC accession number 203426; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203426.
- 1 47. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203427, or is any progeny of the plant with ATCC accession number 203427; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203427.

- 1 48. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203428, or is any progeny of the plant with ATCC accession number 203428; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203428.
- 1 49. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203429, or is any progeny of the plant with ATCC accession number 203429; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203429.
- 1 50. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203430, or is any progeny of the plant with ATCC accession number 203430; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203430.
- 1 51. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203431, or is any progeny of the plant with ATCC accession number 203431; wherein
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203431.
- 1 52. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number 203432, or is any progeny of the plant with ATCC accession number 203432; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203432.
- 1 53. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number 203433, or is any progeny of the plant with ATCC accession number 203433; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203433.

- 1 54. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number aaaaa, or is any progeny of the plant with ATCC accession number aaaaa; wherein the
- 3 plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 aaaaa.

- 1 55. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number bbbbb, or is any progeny of the plant with ATCC accession number bbbbb; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 bbbbb.
- 1 56. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number ccccc, or is any progeny of the plant with ATCC accession number ccccc; wherein the
- 3 plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 ccccc.
- 1 57. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number ddddd, or is any progeny of the plant with ATCC accession number ddddd; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 ddddd.
- 1 58. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number eeeee, or is any progeny of the plant with ATCC accession number eeeee; wherein the
- 3 plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 eeeee.
- 1 59. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number fffff, or is any progeny of the plant with ATCC accession number fffff; wherein the
- 3 plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 fffff.
- 1 60. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number ggggg, or is any progeny of the plant with ATCC accession number ggggg; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number ggggg
- 1 61. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 1,
- 2 said process comprising applying a herbicide to the weeds and to the rice plant, wherein the
- herbicide comprises primisulfuron, triasulfuron, chlorsulfuron, imazamethabenz methyl, or a derivative of any of these herbicides.

1	62.	A herbicide-resistant rice plant, wherein:
2		(a) the growth of said herbicide-resistant plant is resistant to inhibition by at least one
3		herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide
4		that would normally inhibit the growth of a rice plant; and
5		(b) said herbicide-resistant plant is a derivative of a rice plant obtained by exposing rice
6		plants to mutation-inducing conditions; growing rice plants from the exposed plants, or
7		growing rice plants from progeny of the exposed plants, in the presence of at least one
8		herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide
9		that would normally inhibit the growth of a rice plant; and selecting for further
10		propagation rice plants that grow without significant injury in the presence of the
11		herbicide; and
12		(c) said herbicide-resistant plant expresses a functional acetohydroxyacid synthase that
13		is resistant to inhibition by at least one herbicide that normally inhibits
14		acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the
15		growth of a rice plant;
16	provi	ded that excluded from the scope of this Claim is:
17		(d) a plant that is the plant/with ATCC accession number 97523; and any mutant,
18		recombinant, or genetically/engineered derivative of the plant with ATCC accession
19		number 97523 or of any progeny of the plant with ATCC accession number 97523; and
20		any plant that is the progeny of any of these plants; wherein these derivatives of the
21		plant with ATCC accession number 97523 that are excluded from the scope of this
22		Claim are those that retain the herbicide resistance characteristics of the plant with
		ATCC accession number 97523.
1	63.	A process for controlling weeds in the vicinity of a mice plant as registed in Claim CO.
2		A process for controlling weeds in the vicinity of a rice plant as recited in Claim 62,
4	saiu	process comprising applying a herbicide to the weeds and to the rice plant, wherein the

herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would

normally inhibit the growth of a rice plant.

- 1 64. A rice plant as recited in Claim 62, wherein the growth of said plant is resistant to inhibition by at least one imidazolinone herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 1 65. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 64, said process comprising applying an imidazolinone herbicide to the weeds and to the rice plant, wherein the herbicide normally inhibits acetchydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
 - 66. A rice plant as recited in Claim 62, wherein the growth of said plant is resistant to inhibition by at least one sulfonylurea herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
 - A process for controlling weeds in the vicinity of a rice plant as recited in Claim 66, said process comprising applying a sulforylurea herbicide to the weeds and to the rice plant, wherein the herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
 - 68. A rice plant as recited in Claim 62, wherein the growth of said plant is resistant to inhibition by at least one herbicide selected from the group consisting of imazethapyr, imazapic, imazapyr, nicosulfuron, sulfometuron methyl, imazaquin, primisulfuron, imazamox, chlorimuron ethyl, metsulfuron methyl, rimsulfuron, thifensulfuron methyl, tribenuron methyl, and pyrithiobac sodium; at levels of the herbicide that would normally inhibit the growth of a rice plant.

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normally inhibit the growth of a rice plant.

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1	69. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 68,
2	said process comprising applying to the weeds and to the rice plant at least one herbicide
3	selected from the group consisting of imazethapyr, imazapic, imazapyr, nicosulfuron,
4	sulfometuron methyl, imazaquin, primisulfuron, imazamox, chlorimuron ethyl, metsulfuron
5	methyl, rimsulfuron, thifensulfuron methyl, tribenuron methyl, and pyrithiobac sodium; at
	levels of the herbicide that would normally inhibit the growth of a rice plant.
1	70. A rice plant as recited in Claim 62, wherein the mutation-inducing conditions comprise
	exposing rice seeds to a mutagen.
1	71. A process for imparting herbicide resistance to rice plants, said process comprising the
2	steps of:
3	(a) exposing rice plants to mutation-inducing conditions;
4	(b) growing rice plants from the expessed plants, or growing rice plants from progeny
5	of the exposed plants, in the presence of at least one herbicide that normally inhibits
6	acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the
7	growth of a rice plant; and
8	(c) selecting for further propagation rice plants that grow without significant injury in
9	the presence of the herbicide.
1	72. A process as recited in Claim 71, wherein the herbicide is selected from the group
	consisting of imazethapyr, imazapic, and imazapyr.
1	73. A process as recited in Claim 71 wherein said exposing step comprises exposing rice
	seeds to a mutagen.

A process as recited in Claim 71, wherein the plants selected for further propagation

express a functional acetohydroxyacid synthase that is resistant to inhibition by at least one

herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would

1	75.	A herbicide-resistant rice plant, wherein:
2		(a) the growth of said herbicide-resistant plant is resistant to inhibition by at least one
3		herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide
4		that would normally inhibit the growth of a rice plant;
5		(b) said herbicide-resistant plant expresses functional first and second resistant
6		acetohydroxyacid synthases, each of which said resistant acetohydroxyacid synthases is
7		resistant to inhibition by at least one herbicide that normally inhibits acetohydroxyacid
8		synthase, at levels of the herbicide that would normally inhibit the growth of a rice
9		plant;
10		(c) said first and second resistant acetohydroxyacid synthases are not identical; and
11		(d) said first resistant acetohydroxyacid synthase is a mutated form of a first wild-type
12		rice acetohydroxyacid synthase, and said second resistant acetohydroxyacid synthase is
13		a mutated form of a second wild-type rice acetohydroxyacid synthase; wherein the first
14		and second wild-type rice acetohydroxyacid synthases are different enzymes that are
		normally encoded by different genes of wild-type rice plants.
1	76.	A process for controlling weeds in the vicinity of a rice plant as recited in Claim 75,
2	said _j	process comprising applying a herbicide to the weeds and to the rice plant, wherein the
3	herbi	cide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would
	norm	ally inhibit the growth of a rice plant.
1	77.	A rice plant as recited in Claim 75, wherein the growth of said plant is resistant to
2	inhib	ition by at least one imidazolinone herbicide that normally inhibits acetohydroxyacid
	synth	ase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
1	78.	A process for controlling weeds in the vicinity of a rice plant as recited in Claim 77,
2	said p	process comprising applying an imidazolinone herbicide to the weeds and to the rice plant,

wherein the herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide

that would normally inhibit the growth of a rice plant.

- 79. A rice plant as recited in Claim 75, wherein the growth of said plant is resistant to inhibition by at least one sulfonylurea herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 80. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 79, said process comprising applying a sulfonylurea herbicide to the weeds and to the rice plant, wherein the herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 1 81. A rice plant as recited in Claim 75, wherein said plant is a derivative of the plant with 2 ATCC accession number 75295, and said plant additionally has the herbicide resistance characteristics of the plant with ATCC accession number 75295.



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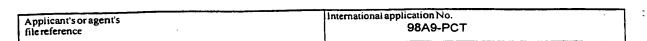
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Applicant's oragent's	98A9-PCT
filereference	90A9-PC1

INDICATIONS RELATING TO DEPOSITED MICROORGANISM OR OTHER BIOLOGICAL MATERIAL

A. The indications on page	made below relate to the deposited microorgan	nism or other biological material referred to in the description 28-35
B. IDENTIFICA	TION OF DEPOSIT	Further deposits are identified on an additional sheet
Name of depositary	institution American Type Culture Collection	1
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Applicant's or agent's file reference	International application No. 98A9-PCT

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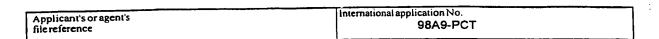
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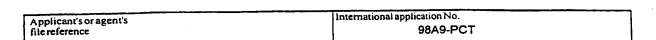
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From the INTERNATIONAL SEARCHING AUTHORITY

Taylor, Porter, Brooks & Phillips Attn. RUNNELS, JOHN, H. P.O. Box 2471 Baton Rouge, Louisiana 70821 UNITED STATES OF AMERICA

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AYLOR, PORTER, BROOKS & PHILLIPS

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing

(day/month/year)

07/03/2000

Applicant's or agent's file reference

98A9-PCT

See paragraphs 1 and 4 below

International application No.

PCT/US 99/26062

International filing date (day/month/year)

FOR FURTHER ACTION

05/11/1999

Applicant

BOARD OF SUPERVISORS OF LOUISIANA STATE UNI. et al

1. X	The applicant is hereby notified that the International Search Report has been established and is transmitted herewith		
			and statement under Article 19:
	The appl	icant is entitled,	if he so wishes, to amend the claims of the International Application (see Rule 46):
	When?	Ine time limit to International Se	or filing such amendments is normally 2 months from the date of transmittal of the earch Report; however, for more details, see the notes on the accompanying sheet.
	Where?	Directly to the	International Bureau of WIPO
		•	34, chemin des Colombettes
			1211 Geneva 20, Switzerland
			Fascimile No.: (41-22) 740.14.35
	For more	e detailed instru	uctions, see the notes on the accompanying sheet.
2.	The appl Article 17	icant is hereby n 7(2)(a) to that eff	otified that no International Search Report will be established and that the declaration under ect is transmitted herewith.
3. 🔲	With rea	ard to the prote	est against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
т 🗀		and to the prote	against payment of (an) additional loc(s) under ridle 40.2, the applicant is notified that.
	the app	protest together dicant's request	with the decision thereon has been transmitted to the International Bureau together with the to forward the texts of both the protest and the decision thereon to the designated Offices.
	no d	decision has bee	en made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Further action(s): The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority

European Patent Office, P.B. 5818 Patentiaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni,

Fax: (+31-70) 340-3016

Authorized officer

Irene Rbia-Brand



These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international polication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

Notes to Form PCT/ISA/220 (first sheet) (January 1994)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

- 1. [Where originally there were 48 claims and after amendment of some claims there are 51]: "Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
- [Where originally there were 15 claims and after amendment of all claims there are 11]: "Claims 1 to 15 replaced by amended claims 1 to 11."
- [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
 "Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or "Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
- 4. [Where various kinds of amendments are made]: "Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international appplication is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

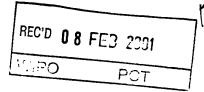
Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.







PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

	or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
98A9-PC	Γ		
	I application No.	International filing date (day/mon	
PCT/US9		05/11/1999	05/11/1998
Internationa A01H5/10		r national classification and IPC	
Applicant	DE SLIPERVISORS OF	LOUISIANA STATE et al.	
1. This in and is	nternational preliminary ex transmitted to the applica	amination report has been preparent according to Article 36.	ed by this International Preliminary Examining Authority
2. This F	REPORT consists of a total	I of 7 sheets, including this cover	sheet.
· b	een amended and are the	nied by ANNEXES, i.e. sheets of basis for this report and/or sheets n 607 of the Administrative Instruc	the description, claims and/or drawings which have containing rectifications made before this Authority tions under the PCT).
These	e annexes consist of a tota	l of 19 sheets.	
1	eport contains indications Basis of the report Priority	relating to the following items:	
11 111		of opinion with regard to novelty, i	inventive step and industrial applicability
IV	□ Lack of unity of inverse.		,
٧	☑ Reasoned statement ■ Reasoned statem		o novelty, inventive step or industrial applicability;
VI	☐ Certain documents	cited	
VII	☑ Certain defects in the second control of the second control	he international application	
VIII	☑ Certain observation	ns on the international application	
Date of sul	omission of the demand	Date	of completion of this report
22/05/20	000	05.02	2.2001
	mailing address of the internal	tional Autho	orized officer
<i>a</i>	European Patent Office D-80298 Munich		rera, M
<u> </u>	Tel. +49 89 2399 - 0 Tx: 52 Fax: +49 89 2399 - 4465	•	obone No. +49.89 2399 2090

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/26062

I. Basis of the report

	the	ponse to an invitation report since they description, pages:	on under Article 14 o not contain ame	4 are referred Indments (Ru	l to in this repo les 70.16 and	rt as "originally file 70.17).):	ed" and are not annexed to)
	1-10	0,12-55	as originally filed					
	11		filed with the dem	nand				
	Clai	ims, No.:						
	1-15 75-	5,31-38,54-73, 128	as received on		13/11/2000	with letter of	09/11/2000	
2.		n regard to the lang guage in which the					ned to this Authority in the nder this item.	
	The	se elements were a	available or furnist	ned to this Au	thority in the f	ollowing language	: , which is:	
		the language of a	translation furnish	ed for the pu	rposes of the i	nternational searc	h (under Rule 23.1(b)).	
		the language of pu	ublication of the in	ternational ap	plication (und	er Rule 48.3(b)).		
		the language of a 55.2 and/or 55.3).	translation furnish	ed for the pu	rposes of inter	national prelimina	ry examination (under Rul	е
3.		n regard to any nuo rnational preliminal			-		tional application, the ting:	
		contained in the in	iternational applica	ation in writte	n form.			
		filed together with the international application in computer readable form.						
		☐ furnished subsequently to this Authority in written form.						
		furnished subsequently to this Authority in computer readable form.						
		The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.						
		The statement that listing has been full		ecorded in co	omputer reada	ble form is identica	al to the written sequence	
4.	The	amendments have	e resulted in the ca	ancellation of	:			
		the description,	pages:					
	\boxtimes	the claims,	Nos.:	16-30,39-5	3,74			
	. 🗆	the drawings,	sheets:					

1. This report has been drawn on the basis of (substitute sheets which have been furnished to the receiving Office in

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/26062

5. This report has been established as if (some of) the amendments had no considered to go beyond the disclosure as filed (Rule 70.2(c)):		ome of) the amendments had not been made, since they have been as filed (Rule 70.2(c)):					
		(Any replacement sheet report.)	contain	ing such	amendments must be referred to under item 1 and annexed to this		
6.	Add	itional observations, if ne	cessary	':			
IV.	. Lac	k of unity of invention					
1.	In re	esponse to the invitation t	o restric	ct or pay	additional fees the applicant has:		
		restricted the claims.					
		paid additional fees.					
		paid additional fees unde	er prote	st.			
	neither restricted nor paid additional fees.						
2.	⊠	This Authority found that the requirement of unity of invention is not complied and chose, according to Rul 68.1, not to invite the applicant to restrict or pay additional fees.					
3. This Authority considers that the requirement of unity of		uirement	of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is				
		complied with.					
	Ø	not complied with for the see separate sheet	e followi	ng reasor	ns:		
4.		nsequently, the following particular in establishing t			national application were the subject of international preliminary		
	×	⊠ all parts.					
		the parts relating to clair	ns Nos.	•			
V.		asoned statement under ations and explanations			ith regard to novelty, inventive step or industrial applicability;		
1.	Sta	tement					
	No	velty (N)	Yes: No:		1-15,31-38,54-73,77-80,82-128 75,76,81		
	Inv	entive step (IS)	Yes: No:	Claims Claims	1-15,31-38,54-60,64-70,72,73,77-80,82-111,113-127 61-63,71,68,112,128		
	Ind	ustrial applicability (IA)	Yes:	Claims	1-15,31-38,54-73,75-128		



International application No. PCT/US99/26062

No: Claims

2. Citations and explanations see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted: see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made: see separate sheet

Re Item IV Lack of unity of invention

The subject matter *common* to claims 1, 62, 71 and 75 consists merely in resistance of a plant to the action of a herbicide. This feature is *per se* well known in the prior art and forms part of the skilled person's common knowledge. The common subject matter to these claims is therefore not novel and, consequently, not inventive. The claims above, with their correspondent dependent claims, are not so linked as to form a single general inventive concept as required by Rule 13.1 PCT.

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The invention relates to resistance of rice plants to a number of herbicides. In particular a number of plants according to their ATCC accession number are claimed in independent claims 1, 81 and 82. Independent claims 62 and 75 claim define plants resulting from a particular procedure. A process of obtaining plants is defined in independent claim 71. Weed control processes are claimed in independent claims 38, 61, 63, 65, 67, 69, 76, 78, 80, 112 and 128.

The prior art cited in the International search report does not mention or suggest ATCC accession numbers such as claimed in claims 1 and 82. Thus, the plants defined in these claims are to be considered novel and involving an inventive step.

Claim 62 claims plants obtained through a screening procedure, disclaiming plants with ATCC accession number 97523, which is mentioned in US-A-5 545 822. The claim is therefore novel as regards the cited prior art. However, the generic process to obtain said plants by mutation induction, exposure to herbicides at a level inhibiting growth and subsequent screening to identify plants resistant to herbicide such as imazethapyr, is known from the above mentioned document. Similarly, it is known to apply a procedure to control weeds once the resistant trait has been isolated and made available for commercial exploitation, by simple application of the herbicide to which the commercial plant is resistant. As a consequence, the subject matter of claims 61, 62, 63, 71 is novel (because of the disclaimed subject matter), but it cannot be considered

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as unexpected for the skilled person aware of the procedure detailed in document US-A-5 545 822 or indeed of common herbicide application techniques. Claims 61, 62, 63, and 71, in addition to 68, 112 and 128 therefore cannot be considered to involve an inventive step within the meaning of Article 33(3) PCT.

Claim 75 refers to a first and a second herbicide resistant AHAS. US-A-5 545 822 discloses such a combined resistance, anticipating the contents of claim 75 and by extension that of claim 76, contrary to Article 33(2) PCT.

The plant with accession number ATCC 75925 is described in US-A-5 545 822, which further discloses individuals of F₃ exhibiting resistance characteristics of ATCC 75925 (cf. col. 9), so that claim 81 is not novel.

The subject matter of the remaining claims is not directly disclosed or suggested in the prior art cited in the International Search Report.

Re Item VII

Certain defects in the international application

The numbering of the claims and the order with which they they have been arranged do not comply with the provisions of Rule 6.1 PCT.

There appears to be no reason which would justify the inappropriateness of drafting the claims, especially the independent ones in the two-part form required by Rule 6.3(b) PCT.

Re Item VIII

Certain observations on the international application

The subject matter of claims 2 to 7, 9 to 15 and 31 to 37 is contained in the scope, and is therefore a repetition of, the definition of the subject matter according to claim 1. These claims are therefore redundant in scope and contravene the requirement of conciseness of Article 6 PCT.

The method of claim 38 refers to the plants defined in claim 1, with the only difference that primisulfuron may also be used. The plant of claim 1 is defined as a selection among several possibilities. The way of claiming every single selection possibility in a separate independent claim as done for claims 54 to 60, which append on claim 38, is

International application No. PCT/US99/26062 INTERNATIONAL PRELIMINARY **EXAMINATION REPORT - SEPARATE SHEET**

a repetition of the definition of the subject matter according to claim 38. These claims are not concise, contrary to Article 6 PCT. In general, because of the proliferation of claims, some of which with identical scope, the application fails to comply with the requirement of conciseness of Article 6 PCT. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought (what the invention is about), and places an undue burden on the reader seeking to establish the real extent of the claimed subject matter, in contravention also of Rule 6.1(a) PCT.

The use of a non-uniform denomination for the same plant, e.g. PTA-904, PWC-16 and ATCC aaaaa (including the inventor's own denomination), makes the definition of claims unclear and difficult to comprehend for the skilled reader.

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application; 0.10 lb ai/A sulfometuron methyl (trade name Oust™) as a pre-emergence application; 0.05 lb ai/A sulfometuron methyl as a post-emergence application; 0.10 lb ai/A nicosulfuron (trade name Accent™) applied pre-emergence; and 0.05 lb ai/A nicosulfuron applied post-emergence. Two M₃ seed from each of the twenty-three herbicide-resistant lines were planted in each of four replicate pots for each treatment. Equivalent plantings of control lines were made with (non-resistant) Cypress and Bengal rice seeds.

Samples of the seed harvested from several of these lines of the M₄ progeny; namely, samples of M₅ seed from each of the seven separate lines designated by the inventor as PWC16, PWC23, CMC29, CMC31, WDC33, WDC37, and WDC38; were separately deposited with the American Type Culture Collection (ATCC), 10801 University Boulevard, Manassas, Virginia 20110-2209 on November 2, 1999; and were assigned ATCC Accession Nos. PTA-904, PTA-905, PTA-902, PTA-903, PTA-906, PTA-907, and PTA-908, respectively. Each of these deposits was made pursuant to a contract between ATCC and the assignee of this patent application, Board of Supervisors of Louisiana State University and Agricultural and Mechanical College. Each of the contracts with ATCC provides for permanent and unrestricted availability of these seeds or the progeny of these seeds to the public on the issuance of the U.S. patent describing and identifying the deposit or the publication or the laying open to the public of any U.S. or foreign patent application, whichever comes first, and for the availability of these seeds to one determined by the U.S. Commissioner of Patents and Trademarks (or by any counterpart to the Commissioner in any patent office in any other country) to be entitled thereto under pertinent statutes and regulations. The assignee of the present application has agreed that if any of the seeds on deposit should become nonviable or be lost or destroyed when cultivated under suitable conditions, they will be promptly replaced on notification with a viable sample of the same seeds.

Five other lines, designated by the inventor as PWC17, PWC19, PWC21, PWC22, and CMC27, exhibited lower levels of herbicide resistance. These lines appear to differ both from the lines that have now been deposited with ATCC, and from prior line ATCC 97523. Due to their lower levels of resistance, these lines had not been deposited with ATCC as of the international filing date of the present application. However, these lines may have potential value as breeding material to cross with other sources of herbicide resistance, or with each other, in order to enhance total levels of resistance. If these five lines involve different resistance mechanisms, or different AHAS isozymes as compared to the ATCC-deposited lines, then crossing one of these lines with one of the ATCC-deposited lines could result in a hybrid with an enhanced total level of resistance. Their herbicide resistance levels would not,

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What is claimed:

1	1.	A rice plant wherein:
2		(a) the growth of said plant is resistant to inhibition by one or more of the following
3		herbicides, at levels of herbicide that would normally inhibit the growth of a rice plant:
4	4	imazethapyr, imazapic, imazapyr, nicosulfuron, sulfometuron methyl, imazaquin,
5		imazamox, chlorimuron ethyl, metsulfuron methyl, rimsulfuron, thifensulfuron methyl,
6		tribenuron methyl, pyrithiobac sodium, or a derivative of any of these herbicides; and
7		(b) said plant is a derivative of at least one of the plants selected from the group of
8		plants with ATCC accession numbers PTA-904, PTA-905, PTA-902, PTA-903, PTA-
9		906, PTA-907, and PTA-908; and
10		(c) said plant has the herbicide resistance characteristics of at least one of the plants
11		selected from the group of plants with ATCC accession numbers PTA-904, PTA-905,
12		PTA-902, PTA-903, PTA-906, PTA-907, and PTA-908.
1	2.	A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
2	inhib	oition by imazethapyr, at levels of imazethapyr that would normally inhibit the growth of a
3	rice	plant.
1	3.	A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
2	inhit	oition by imazapic, at levels of imazapic that would normally inhibit the growth of a rice
3	plan	
1	4.	A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
2	inhib	oition by imazapyr, at levels of imazapyr that would normally inhibit the growth of a rice
3	plan	t.
1	5.	A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
2	inhil	oition by nicosulfuron, at levels of nicosulfuron that would normally inhibit the growth of a
3	rice	plant.

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- 1 6. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by sulfometuron methyl, at levels of sulfometuron methyl that would normally inhibit
- 3 the growth of a rice plant.
- 1 7. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by imazaquin, at levels of imazaquin that would normally inhibit the growth of a rice
- 3 plant.
- 1 8. A rice plant as recited in Claim 1, wherein the growth of said plant is additionally
- 2 resistant to inhibition by primisulfuron, at levels of primisulfuron that would normally inhibit
- 3 the growth of a rice plant.
- 9. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by imazamox, at levels of imazamox that would normally inhibit the growth of a rice
- 3 plant.
- 1 10. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by chlorimuron ethyl, at levels of chlorimuron ethyl that would normally inhibit the
- 3 growth of a rice plant.
- 1 11. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by metsulfuron methyl, at levels of metsulfuron methyl that would normally inhibit
- 3 the growth of a rice plant.
- 1 12. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by rimsulfuron, at levels of rimsulfuron that would normally inhibit the growth of a
- 3 rice plant.

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- 1 13. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by thifensulfuron methyl, at levels of thifensulfuron methyl that would normally.
- 3 inhibit the growth of a rice plant.
- 1 14. A rice plant as recited in Claim 1, wherein the growth of said plant is additionally
- 2 resistant to inhibition by tribenuron methyl, at levels of tribenuron methyl that would normally
- 3 inhibit the growth of a rice plant.
- 1 15. A rice plant as recited in Claim 1, wherein the growth of said plant is resistant to
- 2 inhibition by pyrithiobac sodium, at levels of pyrithiobac sodium that would normally inhibit
- 3 the growth of a rice plant.
- 1 31. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number PTA-904, or is any progeny of the plant with ATCC accession number PTA-904;
- 3 wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-904.
- 1 32. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number PTA-905, or is any progeny of the plant with ATCC accession number PTA-905;
- 3 wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-905.
- 1 33. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number PTA-902, or is any progeny of the plant with ATCC accession number PTA-902;
- 3 wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-902.
- 1 34. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- 2 number PTA-903, or is any progeny of the plant with ATCC accession number PTA-903;
- 3 wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-903.



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- 1 35. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number PTA-906, or is any progeny of the plant with ATCC accession number PTA-906;
- 3 wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-906.
- 1 36. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number PTA-907, or is any progeny of the plant with ATCC accession number PTA-907;
- 3 wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-907.
- 1 37. A rice plant as recited in Claim 1, wherein said plant is the plant with ATCC accession
- number PTA-908, or is any progeny of the plant with ATCC accession number PTA-908;
- 3 wherein said plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-908.
- 1 38. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 1,
- 2 said process comprising applying a herbicide to the weeds and to the rice plant, wherein the
- 3 herbicide comprises imazethapyr, imazapic, imazapyr, nicosulfuron, sulfometuron methyl,
- 4 imazaquin, primisulfuron, imazamox, chlorimuron ethyl, metsulfuron methyl, rimsulfuron,
- 5 thifensulfuron methyl, tribenuron methyl, pyrithiobac sodium, or a derivative of any of these
- 6 herbicides.
- 1 54. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number PTA-904, or is any progeny of the plant with ATCC accession number PTA-904;
- 3 wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-904.
- 1 55. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number PTA-905, or is any progeny of the plant with ATCC accession number PTA-905;
- 3 wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-905.



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- 1 56. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number PTA-902, or is any progeny of the plant with ATCC accession number PTA-902;
- 3 wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-902.
- 1 57. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number PTA-903, or is any progeny of the plant with ATCC accession number PTA-903;
- 3 wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-903.
- 1 58. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number PTA-906, or is any progeny of the plant with ATCC accession number PTA-906;
- 3 wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-906.
- 1 59. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- number PTA-907, or is any progeny of the plant with ATCC accession number PTA-907;
- 3 wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-907.
- 1 60. A process as recited in Claim 38, wherein the plant is the plant with ATCC accession
- 2 number PTA-908, or is any progeny of the plant with ATCC accession number PTA-908;
- 3 wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession
- 4 number PTA-908.
- 1 61. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 1,
- 2 said process comprising applying a herbicide to the weeds and to the rice plant, wherein the
- 3 herbicide comprises primisulfuron, triasulfuron, chlorsulfuron, imazamethabenz methyl, or a
- 4 derivative of any of these herbicides.

Federal Express Airbill No. 7918 9415 9427

62. A herbicide-resistant rice plant, wherein:

(a) the growth of said herbicide-resistant plant is resistant to inhibition by at least one herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant; and

(b) said herbicide-resistant plant is a derivative of a rice plant obtained by exposing rice plants to mutation-inducing conditions; growing rice plants from the exposed plants, or growing rice plants from progeny of the exposed plants, in the presence of at least one herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant; and selecting for further propagation rice plants that grow without significant injury in the presence of the herbicide; and

(c) said herbicide-resistant plant expresses a functional acetohydroxyacid synthase that is resistant to inhibition by at least one herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant;

provided that excluded from the scope of this Claim is:

(d) a plant that is the plant with ATCC accession number 97523; and any mutant, recombinant, or genetically engineered derivative of the plant with ATCC accession number 97523 or of any progeny of the plant with ATCC accession number 97523; and any plant that is the progeny of any of these plants; wherein these derivatives of the plant with ATCC accession number 97523 that are excluded from the scope of this Claim are those that have the same herbicide resistance characteristics as the plant with ATCC accession number 97523.

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- 1 63. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 62, said process comprising applying a herbicide to the weeds and to the rice plant, wherein the herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 1 64. A rice plant as recited in Claim 62, wherein the growth of said plant is resistant to
 2 inhibition by at least one imidazolinone herbicide that normally inhibits acetohydroxyacid
 3 synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 1 65. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 64,
 2 said process comprising applying an imidazolinone herbicide to the weeds and to the rice plant,
 3 wherein the herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide
 4 that would normally inhibit the growth of a rice plant.
- 1 66. A rice plant as recited in Claim 62, wherein the growth of said plant is resistant to
 2 inhibition by at least one sulfonylurea herbicide that normally inhibits acetohydroxyacid
 3 synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 1 67. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 66, 2 said process comprising applying a sulfonylurea herbicide to the weeds and to the rice plant, 3 wherein the herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 1 68. A rice plant as recited in Claim 62, wherein the growth of said plant is resistant to
 2 inhibition by at least one herbicide selected from the group consisting of imazethapyr,
 3 imazapic, imazapyr, nicosulfuron, sulfometuron methyl, imazaquin, primisulfuron, imazamox,
 4 chlorimuron ethyl, metsulfuron methyl, rimsulfuron, thifensulfuron methyl, tribenuron methyl,
 5 and pyrithiobac sodium; at levels of the herbicide that would normally inhibit the growth of a
 6 rice plant.

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- 69. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 68, said process comprising applying to the weeds and to the rice plant at least one herbicide selected from the group consisting of imazethapyr, imazapic, imazapyr, nicosulfuron, sulfometuron methyl, imazaquin, primisulfuron, imazamox, chlorimuron ethyl, metsulfuron methyl, rimsulfuron, thifensulfuron methyl, tribenuron methyl, and pyrithiobac sodium; at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 70. A rice plant as recited in Claim 62, wherein the mutation-inducing conditions comprise exposing rice seeds to a mutagen.
- 71. A process for imparting herbicide resistance to rice plants, said process comprising the steps of:
 - (a) exposing rice plants to mutation-inducing conditions;
 - (b) growing rice plants from the exposed plants, or growing rice plants from progeny of the exposed plants, in the presence of at least one herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant; and
 - (c) selecting for further propagation one or more rice plants that grow without significant injury in the presence of the herbicide; wherein the plants selected for further propagation express a functional acetohydroxyacid synthase that is resistant to inhibition by at least one herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant; and provided that the rice plant or plants selected for further propagation do not have the herbicide resistance characteristics of the plant with ATCC accession number 97523.
- 72. A process as recited in Claim 71, wherein the herbicide is selected from the group consisting of imazethapyr, imazapic, and imazapyr.
- 73. A process as recited in Claim 71, wherein said exposing step comprises exposing rice seeds to a mutagen.

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•	73.	A heroicide-resistant rice plant, wherein.
2		(a) the growth of said herbicide-resistant plant is resistant to inhibition by at least on
3		herbicide that normally inhibits acetohydroxyacid synthase, at levels of the herbicid
4		that would normally inhibit the growth of a rice plant;
5		(b) said herbicide-resistant plant expresses functional first and second resistant
6		acetohydroxyacid synthases, each of which said resistant acetohydroxyacid synthases i
7		resistant to inhibition by at least one herbicide that normally inhibits acetohydroxyacie
8		synthase, at levels of the herbicide that would normally inhibit the growth of a rice
9		plant;
10		(c) said first and second resistant acetohydroxyacid synthases are not identical; and
11		(d) said first resistant acetohydroxyacid synthase is a mutated form of a first wild-type
12		rice acetohydroxyacid synthase; and said second resistant acetohydroxyacid synthase is
13		a mutated form of a second wild-type rice acetohydroxyacid synthase; wherein the firs
14		and second wild-type rice acetohydroxyacid synthases are different enzymes that are
		normally encoded by different genes of wild-type rice plants.
1	76.	A process for controlling weeds in the vicinity of a rice plant as recited in Claim 75
2	said process comprising applying a herbicide to the weeds and to the rice plant, wherein th	
3	herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would	
4	norma	lly inhibit the growth of a rice plant.
1	77.	A rice plant as recited in Claim 75, wherein the growth of said plant is resistant to
2	inhibition by at least one imidazolinone herbicide that normally inhibits acetohydroxyacie	
3	synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant	

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- 1 78. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 77,
- 2 said process comprising applying an imidazolinone herbicide to the weeds and to the rice plant,
- wherein the herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 1 79. A rice plant as recited in Claim 75, wherein the growth of said plant is resistant to
- 2 inhibition by at least one sulfonylurea herbicide that normally inhibits acetohydroxyacid
- 3 synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 80. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 79,
- 2 said process comprising applying a sulfonylurea herbicide to the weeds and to the rice plant.
- wherein the herbicide normally inhibits acetohydroxyacid synthase, at levels of the herbicide that would normally inhibit the growth of a rice plant.
- 1 81. A rice plant as recited in Claim 75, wherein said plant is a derivative of the plant with
- 2 ATCC accession number 75295, and said plant additionally has the herbicide resistance
- 3 characteristics of the plant with ATCC accession number 75295.

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1 82. A rice plant wherein:

- (a) the growth of said plant is resistant to inhibition by one or more of the following herbicides, at levels of herbicide that would normally inhibit the growth of a rice plant: imazethapyr, imazapic, imazapyr, nicosulfuron, sulfometuron methyl, imazaquin, imazamox, chlorimuron ethyl, metsulfuron methyl, rimsulfuron, thifensulfuron methyl, tribenuron methyl, pyrithiobac sodium, or a derivative of any of these herbicides; and
- 7 (b) said plant is a derivative of at least one of the plants selected from the group of plants with ATCC accession numbers 203419, 203420, 203421, 203422, 203423, 203424, 203425, 203426, 203427, 203428, 203429, 203430, 203431, 203432, and 203433; and
- 11 (c) said plant has the herbicide resistance characteristics of at least one of the plants
 12 selected from the group of plants with ATCC accession numbers 203419, 203420,
 13 203421, 203422, 203423, 203424, 203425, 203426, 203427, 203428, 203429,
 14 203430, 203431, 203432, and 203433.
- 1 83. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to inhibition by imazethapyr, at levels of imazethapyr that would normally inhibit the growth of a rice plant.
- 84. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to inhibition by imazapic, at levels of imazapic that would normally inhibit the growth of a rice plant.
- 1 85. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
 2 inhibition by imazapyr, at levels of imazapyr that would normally inhibit the growth of a rice
 3 plant.
- 86. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to inhibition by nicosulfuron, at levels of nicosulfuron that would normally inhibit the growth of a rice plant.

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- 1 87. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
- 2 inhibition by sulfometuron methyl, at levels of sulfometuron methyl that would normally inhibit the growth of a rice plant.
- 1 88. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
- 2 inhibition by imazaquin, at levels of imazaquin that would normally inhibit the growth of a rice
- 3 plant.
- 1 89. A rice plant as recited in Claim 82, wherein the growth of said plant is additionally
- 2 resistant to inhibition by primisulfuron, at levels of primisulfuron that would normally inhibit
- 3 the growth of a rice plant.
- 90. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
- 2 inhibition by imazamox, at levels of imazamox that would normally inhibit the growth of a rice
- 3 plant.
- 1 91. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
- 2 inhibition by chlorimuron ethyl, at levels of chlorimuron ethyl that would normally inhibit the
- 3 growth of a rice plant.
- 1 92. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
- 2 inhibition by metsulfuron methyl, at levels of metsulfuron methyl that would normally inhibit
- 3 the growth of a rice plant.
- 1 93. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
- 2 inhibition by rimsulfuron, at levels of rimsulfuron that would normally inhibit the growth of a
- 3 rice plant.
- 1 94. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
- 2 inhibition by thifensulfuron methyl, at levels of thifensulfuron methyl that would normally
- 3 inhibit the growth of a rice plant.



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- 95. A rice plant as recited in Claim 82, wherein the growth of said plant is additionally
- 2 resistant to inhibition by tribenuron methyl, at levels of tribenuron methyl that would normally
- 3 inhibit the growth of a rice plant.
- 1 96. A rice plant as recited in Claim 82, wherein the growth of said plant is resistant to
- 2 inhibition by pyrithiobac sodium, at levels of pyrithiobac sodium that would normally inhibit
- 3 the growth of a rice plant.
- 1 97. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203419, or is any progeny of the plant with ATCC accession number
- 3 203419; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203419.
- 98. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203420, or is any progeny of the plant with ATCC accession number
- 3 203420; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203420.
- 1 99. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203421, or is any progeny of the plant with ATCC accession number
- 3 203421; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203421.
- 1 100. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203422, or is any progeny of the plant with ATCC accession number
- 3 203422; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203422.
- 5 101. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 6 accession number 203423, or is any progeny of the plant with ATCC accession number
- 7 203423; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 8 accession number 203423.



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- 1 102. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203424, or is any progeny of the plant with ATCC accession number
- 3 203424; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203424.
- 1 103. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203425, or is any progeny of the plant with ATCC accession number
- 3 203425; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203425.
- 1 104. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203426, or is any progeny of the plant with ATCC accession number
- 3 203426; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203426.
- 1 105. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203427, or is any progeny of the plant with ATCC accession number
- 3 203427; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203427.
- 1 106. A rice plant as recited in Claim 82, wherein said plant is the plant with AFCC
- 2 accession number 203428, or is any progeny of the plant with ATCC accession number
- 3 203428; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203428.
- 1 107. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- accession number 203429, or is any progeny of the plant with ATCC accession number
- 3 203429; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203429.



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- 1 108. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203430, or is any progeny of the plant with ATCC accession number
- 3 203430; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203430.
- 1 109. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203431, or is any progeny of the plant with ATCC accession number
- 3 203431; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203431.
- 1 110. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203432, or is any progeny of the plant with ATCC accession number
- 3 203432; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203432.
- 1 111. A rice plant as recited in Claim 82, wherein said plant is the plant with ATCC
- 2 accession number 203433, or is any progeny of the plant with ATCC accession number
- 3 203433; wherein said plant has the herbicide resistance characteristics of the plant with ATCC
- 4 accession number 203433.
- 1 112. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 82,
- 2 said process comprising applying a herbicide to the weeds and to the rice plant, wherein the
- 3 herbicide comprises imazethapyr, imazapic, imazapyr, nicosulfuron, sulfometuron methyl,
- 4 imazaquin, primisulfuron, imazamox, chlorimuron ethyl, metsulfuron methyl, rimsulfuron,
- 5 thifensulfuron methyl, tribenuron methyl, pyrithiobac sodium, or a derivative of any of these
- 6 herbicides.
- 1 113. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203419, or is any progeny of the plant with ATCC accession number 203419; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203419.

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- 1 114. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203420, or is any progeny of the plant with ATCC accession number 203420; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203420.
- 1 115. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203421, or is any progeny of the plant with ATCC accession number 203421; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203421.
- 1 116. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203422, or is any progeny of the plant with ATCC accession number 203422; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203422.
- 1 117. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203423, or is any progeny of the plant with ATCC accession number 203423; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203423.
- 1 118. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203424, or is any progeny of the plant with ATCC accession number 203424; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203424.
- 1 119. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203425, or is any progeny of the plant with ATCC accession number 203425; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203425.

1 120. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession

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- 2 number 203426, or is any progeny of the plant with ATCC accession number 203426; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203426.
- 1 121. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203427, or is any progeny of the plant with ATCC accession number 203427; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203427.
- 1 122. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203428, or is any progeny of the plant with ATCC accession number 203428; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203428.
- 1 123. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203429, or is any progeny of the plant with ATCC accession number 203429; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203429.
- 1 124. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203430, or is any progeny of the plant with ATCC accession number 203430; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203430.
- 1 125. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- 2 number 203431, or is any progeny of the plant with ATCC accession number 203431; wherein
- 3 the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203431.



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- 1 126. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession number 203432, or is any progeny of the plant with ATCC accession number 203432; wherein the plant has the herbicide resistance characteristics of the plant with ATCC.
- the plant has the herbicide resistance characteristics of the plant with ATCC accession number 203432.
- 1 127. A process as recited in Claim 112, wherein the plant is the plant with ATCC accession
- number 203433, or is any progeny of the plant with ATCC accession number 203433; wherein the plant has the herbicide resistance characteristics of the plant with ATCC accession number
- 4 203433.
- 1 128. A process for controlling weeds in the vicinity of a rice plant as recited in Claim 82,
- 2 said process comprising applying a herbicide to the weeds and to the rice plant, wherein the
- 3 herbicide comprises primisulfuron, triasulfuron, chlorsulfuron, imazamethabenz methyl, or a
- 4 derivative of any of these herbicides.